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REMARKS

The present invention is directed to combination glass pH electrodes, the standard potential of which is stabilized by means one or more of the following structural modifications:

- (a) incorporating a noble metal internal element in the pH half-cell;
- (b) incorporating a noble metal internal element in the reference half-cell;
- (c) incorporating an internal pH bulb electrolyte with stable pH and oxidation-reduction potential;
- (d) incorporating an homogenous reference electrolyte with stable oxidation-reduction potential and equitransferent salt;
- (e) incorporating a liquid junction composed of a porous, inert material;
- (f) incorporating a reference electrolyte compartment vent;
- (g) incorporating a storage sleeve, with or without an absorbent medium located therein.

Restriction/Election:

Applicant's election without traverse of Species F in the reply filed on October 15, 2004 is hereby confirmed. Claims 2-9, 14 and 15 are thus withdrawn from further consideration. Moreover, Claim 1 has been amended to adopt the particular species of the invention to which this application is now directed – namely species (f) as defined above.

Drawings:

The drawings are objected to because they do not include the following reference sign(s) mentioned in the description: glass pH bulb “4”. Applicant agrees. The bulb

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should have been identified in the specification as reference number "9" and the appropriate correction has been made there. Accordingly, no new drawings are required.

Claim Objections:

Claim 13 is objected to under 37 C.F.R. § 1.75(c), as being of improper dependent form. In view of the amendment made to that claim, this objection should be reconsidered and withdrawn. Such action is respectfully requested.

Claim Rejections - 35 U.S.C. § 103:

Claim 1 is rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,608,148 to Frollini, Jr. et al., referred to hereafter as Frollini, in view of U.S. Patent No. 5,362,577 to Pedicini. In view of the amendments made to claim 1, this rejection is respectfully traversed.

As amended, Claim 1 requires the formation of a partial vacuum in the electrolyte chamber. Such a vacuum is not possible in the structures taught by either Frollini or Pedicini – either considered alone or in combination. Accordingly, a *prima facie* case of obviousness cannot be made out citing these references, and the Section 103(a) rejection based thereon must be withdrawn. Such action is respectfully requested.

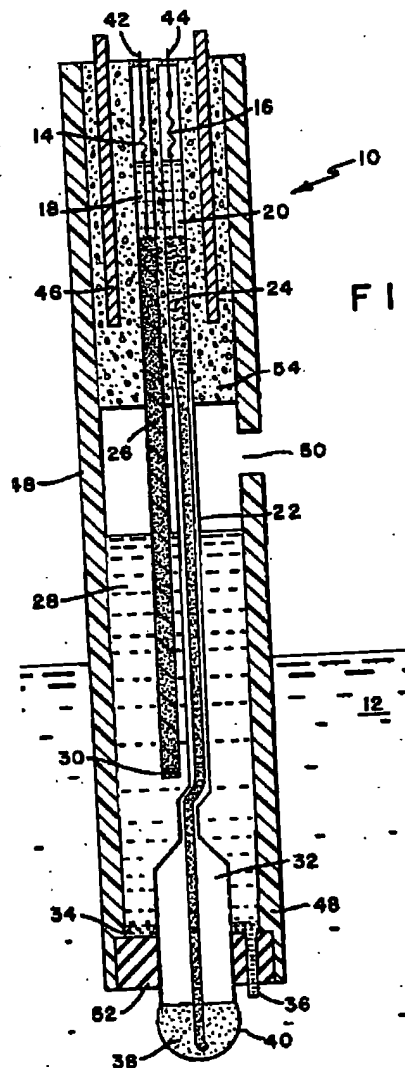
Frollini discloses a combination glass pH electrode that includes a "fill" hole designated as "50" – as discussed at Col. 4, lines 7-11:

The junction electrolyte 28 can be added through an inlet hole 50 and is maintained as a saturated solution with excess KCl crystals 34 which settle atop of the silicon rubber bung 52 situated at the base of the apparatus.

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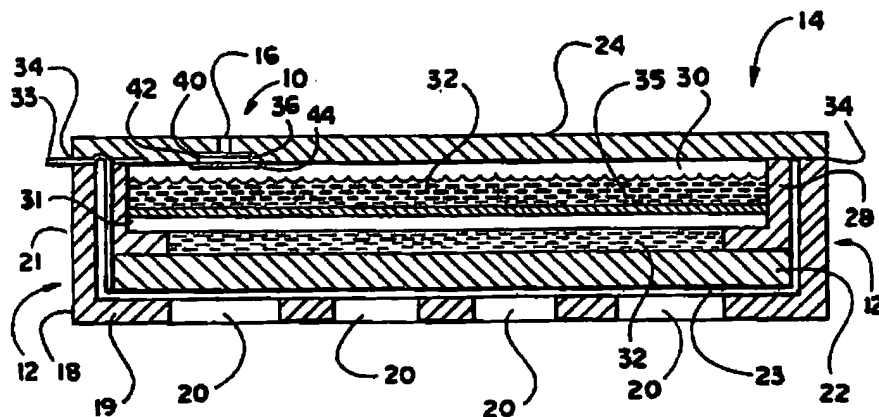
Frollini does not disclose expressly that the reference electrolyte compartment vent (50) minimizes moisture loss or pick-up from the surroundings. Given the size of the "fill hole" (not a "vent") – this is completely reasonable:



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In Frollini, stability of the standard potential is provided by thermal isolation of the internal and external references within the outer body, as more fully discussed in the Frollini patent. See for example Col. 1, lines 38-50; Col. 2, lines 17-40; and Col. 4, lines 12-31, none of which rely upon fill-hole 50. Clearly, this feature is simply what it is described as – a fill hole – with no other useful attributes ascribed thereto.

As illustrated below, Pedicini discloses a rechargeable metal-air cell – a battery, with a constantly open vent system for exhausting gases generated within the battery case. While open at all times, this passageway is designed to operate only as a one-way outlet for gases created inside the sealed battery compartment. Due to both small pore numbers and small sizes, it is not designed for allowing gas or liquid to enter the battery compartment. Even if a partial vacuum (neither taught, nor contemplated) were to form in the compartment, the one-way vent would not permit air to flow into the compartment as required by amended Claim 1.



The vent system exhausts gas from the battery case while maintaining the hermetic seal of the case. The vent system provides a small gas exit hole that is sufficiently small to prevent electrolyte leakage and also intake of excess carbon dioxide or excess water vapor from the atmosphere. Also, various combinations of gas-

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permeable, hydrophobic membranes and diffuser material may cover the gas exit hole to provide humidity control for the battery while exhausting gases from the battery. A recess may be provided within the case such that the gas exit hole communicates between the atmosphere and the recess. Also, various combinations of gas-permeable, hydrophobic membranes and diffuser material may cover the recess and gas exit hole to provide humidity control for the battery while exhausting gases from the battery case.

For more details regarding the vent system "10" taught by Pedicini, see Col. 7, line 29 – Col. 8, line 24 of the patent.

The Office Action makes a claim that Frollini and Pedicini are analogous art. Applicant respectfully disagrees. In one case (Frollini) a large fill hole is employed to replace pH electrolyte lost through evaporation. In the other case (Pedicini) a one-way vent is used for outgassing and to prevent leakage of battery electrolyte. The art in each case is very specific – and very different. The problems faced in each are handled in different manners. They are not analogous and accordingly, they are not properly combinable teachings under Section 103.

Claims 10 and 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Frollini and Pedicini as applied to claim 1 above, and further in view of U.S. Patent No. 5,143,621 to Bartram et al. This rejection is respectfully traversed.

For reasons given above, the combination of Frollini and Pedicini fails to teach or suggest the invention of Claim 1, and likewise fails to teach or suggest the invention defined by Claims 10 and 11, which incorporate all of the limitations of Claim 1. The addition of Bartram does not change this. Accordingly, a *prima facie* case of obviousness cannot be made out citing these references, and the Section 103(a) rejection based thereon must be withdrawn. Such action is respectfully requested.

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The Pedicini vent system would not be modified as suggested by the teachings of Bartram. The replacement of the Pedicini one-way vent-out system with an elastomeric septum closure that is perforated to permit insertion of a tube or needle would defeat the hermetic seal of the vent in Pedicini, allowing gases to enter the battery compartment through the two-way septum closure.

Claims 12 and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Frollini and Pedicini as applied to claim 1 above, and further in view of Bartram and U.S. Patent No. 5,575,769 to Vaillancourt. This rejection is respectfully traversed.

For reasons given above, the combination of Frollini and Pedicini fails to teach or suggest the invention of Claim 1, and likewise fails to teach or suggest the invention defined by Claims 12 and 13, which incorporate all of the limitations of Claim 1. The additions of Bartram and Vaillancourt do not change this. Accordingly, a *prima facie* case of obviousness cannot be made out citing these references, and the Section 103(a) rejection based thereon must be withdrawn. Such action is respectfully requested.

The Pedicini vent system would not be modified as suggested by the teachings of Bartram and/or Vaillancourt. The replacement of the Pedicini one-way vent-out system with an elastomeric septum closure that is perforated to permit insertion of a tube or needle would defeat the hermetic seal of the vent in Pedicini, allowing gases to enter the battery compartment through the two-way septum closure.

General Comment on the Obviousness Rejections:

A *prima facie* case of obviousness is established when the teachings of the prior art would have suggested the claimed subject matter to a person of ordinary skill in the art. In determining whether a case of *prima facie* obviousness exists, it also is necessary

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to ascertain whether the prior art teachings would, by themselves, be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification.

In the present rejection, it appears that the Examiner has done little more than cite references to show that one or more elements, when each is viewed in a vacuum, is known. The claimed invention, however, is clearly directed to a combination of elements that must work in the manner recited in the claims. To support the conclusion that the claimed combination is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed combination, or the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. Given that no such line of reasoning – other than a claim of analogous art – has been presented, the obviousness rejection cannot stand.

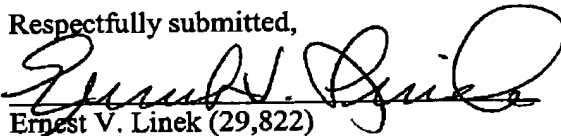
FEE AUTHORIZATION

Please charge any fees (extra claims, time extension, etc.) due in connection with this filing to Deposit Account No. 19-0733.

CERTIFICATE OF FACSIMILE TRANSMISSION

The undersigned hereby certifies that this correspondence was submitted by facsimile in the USPTO on the date shown on Page 1.

Respectfully submitted,


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